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Memorandum

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From: Gregory S. Roof
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cc: File

Date: March 26, 2001

Subject: Groundwater Sampling Information & Revised Sampling Approach
Potential Source of Contamination (PSC) 51, NAS Jacksonville, FL

During the last NAS Jacksonville Partnering Team meeting we discussed the groundwater results from the RI/FS and the potential data gaps. This memo explains additional information that we have from past investigations. It specifically addresses samples collected at depth.

In HLA's SER, HLA states that they collected 35 groundwater samples from the PSC 51 area, with six from microwells and 29 from hydrocone sampling efforts. Three (51G00101, 51G00201 and 51G00401 were analyzed for TCL VOCs, SVOCs, pesticides and PCBs, and TAL inorganics. All others were only analyzed for VOCs. The following table shows all samples reportedly collected at depths greater than 15 feet. Refer to Figure 3-1 of the RI for sampling locations.

Location	Sample Identifier	Date Sampled	Depth (ft bls)
G007 *	51G00701	8/6/1997	15.5 -18.5
Q001	51Q00102	9/3/1997	15.5 - 17.5
	51Q00103	9/3/1997	27.5 - 29.5
Q002	51Q00202	9/4/1997	15.5 - 17.5
	51Q00203	9/4/1997	27.5 - 29.5
Q003	51Q00302	9/4/1997	15.5 - 17.5
	51Q00303	9/4/1997	27.5 - 29.5
Q004	51Q00402	9/4/1997	15.5 - 17.5
	51Q00403	9/4/1997	27.5 - 29.5
Q005	51Q00502	9/5/1997	15.5 - 17.5
	51Q00503	9/5/1997	27.5 - 29.5
Q006	51Q00602	9/9/1997	20 - 24
Q007	51Q00702	9/9/1997	20 - 24
Q008	51Q00801	9/12/1997	20 - 24
Q009	51Q00902	9/29/1997	20 - 24
	51Q00903	9/29/1997	28 - 32
Q010	51Q01002	9/30/1997	17 - 21
	51Q01003	9/30/1997	28 - 32
Q011	51Q01102	10/1/1997	17 - 21
	51Q01103	10/1/1997	28 - 32

* Assumed to be MW-07 on Figure 3-1 of the RI.

Of these samples the following table lists the detected concentrations of VOCs:

	Sample ID	G007	Q001	Q002	Q003	Q007	Q008
Compound	**Depth (ft bls)**	**15.5 –18.5**	**15.5 - 17.5**	**15.5 – 17.5**	**15.5 - 17.5**	**20 - 24**	**20 - 24**
Benzene		4 **J**	40	13	10	25	28
1,2-DCE (total)		2 **J**					
TCE		14		3.1	2.2		
Vinyl Chloride			13	1.8 J		4	4
Ethyl benzene						3	4
Total Xylenes						14	15
Toluene						1 **J**	1 **J**

No entry in cell indicates non-detect results.
All units are micrograms per liter.

In addition to the sampling performed by HLA, TtNUS has completed the latest semi-annual sampling of the well nest. The results of this effort were

Compound	**GCTL**	**MW-08**	**MW-09**	**MW-10**
Benzene	1	13	5 U	4.2 J
Carbon Disulfide	700	5 U	5 U	1.6 J
Cis-1,2-DCE	70	5.6	5 U	1.1 J
TCE	3	2.3 J	5 U	5 U

All units are micrograms per liter.
GCTL = Groundwater Cleanup Target Level
J = Estimated Value.

Based on the comments to the draft-final RI/FS document and the data presented here, it appears there are three outstanding issues with regards to the groundwater contamination:

1. An issue raised in the EPA's formal response to the RI/FS document (their item 8 of specific comments to the RI/FS) is as follows: "A review of the report indicates that the groundwater contamination is not delineated and needs to be delineated prior to the completion of this Remedial Investigation. Specific examples include the detection of benzene at 120ug/L in MW-04 without a deeper location to provide vertical delineation."

2. Also in this item (8), the EPA raises the issue of horizontal delineation as follows: "The presence of vinyl chloride and benzene in the most down-gradient wells does not provide horizontal delineation. However, an indication of the hydraulic gradient in the upward vertical direction and a surface water sample would provide sufficient justification of delineation if properly documented."

3. In the EPA's formal response to the RI/FS document (their item 10 of specific comments to the RI/FS) is that "It would appear the up-gradient delineation has not been achieved due to the 1997 TCE concentration and subsequent benzene issues at MW-04. It may be necessary to confirm the presence or absence of this contamination with DPT sampling."

To address each of these issues, the NAS Jacksonville partnering team has agreed to the following:

1. With respect to the vertical migration of benzene at MW-04, and hydrocone sampling points shown above, the team has decided that additional sampling to determine the extent of vertical migration should be performed. TtNUS recommends that this be completed using DPT and a mobile laboratory. To facilitate a timely and cost effective assessment effort, the mobile laboratory will analyze only for the constituents previously detected. This list is limited to benzene, toluene, ethylbenzene, xylenes, TCE, 1,2-DCE (cis & trans), vinyl chloride, and naphthalene only. Each DPT boring location will be surveyed. No monitoring wells will be installed with this effort unless deemed necessary for the remedial action. In this situation, the wells will be installed after the remedial design effort is complete. Split samples will be collected

from ten percent of the samples and submitted to a fixed-based laboratory for analysis by EPA method 8260 (report the above list only).

2. With respect to downgradient horizontal delineation, please note that this issue was raised during a partnering meeting when the EPA did not have representation, and since there are access issues regarding installing monitoring wells further downgradient and low levels of benzene and vinyl chloride in the most downgradient wells, the FDEP accepted assuming a downgradient edge to the plume. However, to address this issue, the partnering team has agreed to perform the following activities:

   Install two new well nests beyond the creek in locations selected by the USGS. These wells will be used in one or more of the following scenarios:

   a. Monitoring wells will be installed per USGS guidance and water level measurements will be used by the USGS to determine if the contamination from PSC 51 will ultimately discharge into the creek or if part of the contamination will migrate beyond the creek to off-base locations.

   b. If there is a possibility of the contaminants to migrate beyond the creek, based on the USGS determination, then groundwater from the newly installed wells closest to the creek will be sampled along with the well nest (MW08, MW-09 and MW-10). The samples will be analyzed for the constituents listed in item 1 above only (Since naphthalene was the only PAH reported and it can also be reported as a target compound under EPA method 8260B with a detection limit below the GCTL, it will be reported from the VOC analysis only. This will save the additional cost of PAH analyses).

3. To facilitate a well located horizontally upgradient of MW-04 but in close proximity to the documented contamination, a new upgradient well will be installed. TtNUS anticipates using the DPT and mobile lab to verify that the upgradient location is not contaminated. After this effort, we will install a DPT well as close as possible to the contaminated area. This will enable us to reduce the plume size for remediation efforts.

In Item 8 of the EPA's comments they also stated that "The same" (horizontal and vertical migration issues) "is true for the inorganic contaminants. However, since aluminum, iron and manganese are common groundwater constituents, this needs to be explored further as to the possibility of these compounds being naturally elevated in this specific area. All these matters need to be discussed by the Environmental Management Team so that this investigation can be concluded properly and promptly." Tim Woolheater and I discussed this issue via email and agreed that since the inorganic compounds did not exceed background concentrations, no further investigation of inorganic constituents in groundwater was necessary.

This memo is intended to provide an approved scope of work to complete the RI. We would appreciate an email to document concurrence with the remainder of the work required to complete the groundwater assessment.